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ABSTRACT

This publication contains information for potential technical article writers who wish to know how to become professionals. The 14 chapters deal with the following areas: getting started, developing ideas, gathering information through library research and through interviews, writing for different audiences, choosing titles, writing leads and endings, business writing, structuring the technical article, rewriting, illustrating an article, preparing and selling a manuscript, writing while traveling, and the business side of technical writing. (FL)

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HOW TO WRITE THE TECHNICAL ARTICLE AND GET IT PUBLISHED

HARLEY L. SACHS

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Editing and producing this publication has been a privilege, particularly as it afforded me opportunities to work with one of the Society's well known article writers, Professor Harley L. Sachs of Michigan Technological University in Houghton, Michigan.

Dr. Sachs is Associate Professor in the Humanities Department at Michigan Technological University. He received degrees in English from Indiana University and a Ph.D. in foreign language and letters from Indiana Christian University in 1971. He has also studied at the University of Stockholm, the University of Copenhagen, Southern Illinois University, and Massachusetts Institute of Technology. He taught for the University of Stockholm's adult education program and at Purdue University and Southern Illinois University.

Dr. Sachs has published many articles. His article, "Communication Gamesmanship," in the Society's journal *Technical Communication* won the top award in 1976. He has also translated works from Swedish, Danish, and Norwegian and published one act plays, short stories, and poems.

The author wishes to acknowledge use of his articles from other publications as follows:

"Seduction of the Reader's Mind: The Technical Article as Striptease," *Technical Communication*, Second Quarter 1972, pp. 12–13. Reprinted by permission.

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Ralph Lovell, Managing Editor
STC Publications Committee

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CHAPTER 1

GETTING STARTED

This little book is directed to people who know something about writing. It is not intended for someone who cannot write an effective paragraph, but it is for potential article writers who don't know how to start. You may be tired of never getting a byline for the writing you do. Having an article published may be a good way to show your employer your capabilities, to earn some extra money, for self-satisfaction and the ego gratification of seeing your work in print. It may be all of the above.

Presumably you already have a typewriter with a readable type face, a good dictionary, an English handbook to fall back on if you get into a stylistic bind, a supply of typing paper, carbon paper, and a place where you can work undisturbed. You must also expect to supply illustrations. This does not mean that you must be a graphic artist, but you do need to own a camera and know how to use it.

Assuming you have those tools of your trade, what you need is something to say and an audience to say it to. If you're lucky someone will invite you to write an article. It's always easier if you have an assignment. A solicited piece has a much greater chance of being published. But there are other opportunities. Calls for papers to be presented to professional societies lay down broad guidelines which will stir your imagination. Lists of editors' requirements published in writer's magazines whet your appetite for writing. The newsstands are covered with slick magazines that pay well for articles. Haven't you said on occasion that you could write better than that? There is also a large, hidden market: the trade journals and controlled circulation magazines that never appear on newsstands.

The Trade Journals

Trade journals serve every conceivable legal occupation. There is an organization for every special interest group, and most have journals. Every line of business which can attract paying advertisers has at least one journal. They are your best opportunity for placing an article, but since they are not publicly circulated how do you find out about them?

Your local library has a copy of *Ayer Directory of Publications* and advertising agencies subscribe to *Business Publication Rates and Data*. Ayer will tell you what general group a publication belongs in and its circulation. *Business Publication Rates and Data* supplies a breakdown by readership, such as retailers or shop stewards, geographical distribution, and circulation. This is valuable information that helps you select a market and adapt to an audience.

What's a likely market?

When studying the directories, look for a middle-sized journal. A publication with a circulation of under 5,000 can't afford to pay you for an article; one with a circulation of over 100,000 can afford to hire its own full time staff and may not take anything from outsiders. Writing the editor after you've narrowed down the list is the next step and you may find that chain-owned publications do all their writing in-house. McGraw-Hill publications are entirely staff written. The screening of the directories will eliminate a great number of unlikely markets, like weekly newsletters or publications so slender that they have no room for illustrated articles, but the screening will also suggest some journals you never dreamed existed. Which should you choose?

Pick a field you know something about

You should not attempt to write on a subject you know nothing about. Editors are plagued by free lance writers who know nothing about a line of business and misuse the jargon. I made the mistake of writing an article for *Welding Design and Fabrication* when I didn't know the difference between gas and arc welding! The editor was gracious enough to use what I sent as filler but gently advised me that I really knew nothing about the subject. The wisest procedure is to work into a field you already know something about.

A good approach for technical communicators is a journal related to the communication industry. One such is *Plan and Print*, the journal for the International Repro Graphic Blueprint Association and the official

magazine of the American Institute for Design and Drafting. Blueprinters regularly deal with graphic artists, engineers, architects—anyone needing to reproduce drawings. But blueprinters have also moved into artists' supplies, offset printing, map making, microfilm and microcircuitry. These commercial outlets for the same kind of work dealt with regularly by technical communicators make *Plan and Print* a very suitable market. In addition to that journal there are a number in the printing, graphics, and photography markets, ranging from scientific to popular. You can progress by easy stages into a number of closely related fields. Studying those markets and reading those journals may broaden the horizons of your own job.

You needn't be confined to the communications industry journals. If you are a model builder, there are magazines for toy manufacturers, retailers, and model builders. If you have a green thumb, there are journals for gardeners, supply dealers, farmers, and manufacturers. (I once did a piece for *Implement and Tractor).* As long as you know about the subject you should be able to write for that audience.

This brief introduction is just a start. The chapters that follow will tell you how to gather information, how to present it, and how to sell it—an overview of the business of writing articles.

CHAPTER 2

GETTING IDEAS

"Ripeness" is the term used by one essayist to describe full-flowing creativity. Not all of us are creative. Few people ever come up with something utterly new. Most discoveries are a fusion of things that already exist. Take Gutenberg's "invention" of the printing press and movable type. His century already had wine presses. They already had carved wood block printing. They had metal signet seals which printed crests or initials in sealing wax. Gutenberg took these apparently unrelated things and saw them in a new combination. He was first. But when technology is ripe it produces nearly simultaneous "inventions" of airplanes and automobiles.

You can consciously prepare yourself for innovation. The primary step is to know the "state of the art." If you are in navigation electronics, get to know everything current about products, practices, and applications. Then keep up with related fields. By keeping an inquisitive mind that is open to new combinations, you can "discover" new ideas which will produce articles.

For example, as a teacher of graphic communication, I touch upon silk screen printing, but have not had the training or experience of an artisan. I bought my daughter a silk screen outfit for Christmas and was turned off by its need for smelly bleach and flammable, expensive solvents. I wanted to print a design on cloth, but all available colors would wash out. They were intended for indoor art. Then an article in *Plan and Print* describing silk screen printing used, instead of the word "pigment," the word "paint." Eureka! I realized that silk screen printing would be immensely easier if I used water-soluble latex paint for the pigment, and experimentation proved that Dupont exterior latex paint was excellent. It washed out of the screen with cold water, but once it dried it was permanent. As an afternoon sailor and armchair cruiser of the world, I read several boating magazines. The combination of these factors produced the article "Make Your Own Crew Shirts" in *Boating* magazine. The core was a simple process description.

The same idea can be rewritten for a multitude of special-interest magazines, all using the same core process description adapted for different audiences: "Make Your Own Bowling Shirts," "Silk Screen Your Own Mahjong Doilies," or "Make Your Own Girl Scout Patrol Flags." Each has its own potential market. Once your imagination has clicked, the unrelated pieces fall together as they did for Gutenberg.

Some people who must depend upon a steady flow of such ideas keep card files and notebooks. A cartoonist will file hundreds of cartoons on a variety of subjects. When the mind runs dry, it can be reinspired by a review of the files. What's needed is not something entirely new—just a new angle or application.

My own armchair musings over the variety of yachting hardware in a dozen catalogs have produced several invention ideas for patent disclosures. I'm not an engineer, but often it is the outsider who sees what should have been obvious to the expert. That's how I invented the "Sachs Splice" for braided polypropylene rope, an insight bought by *Rudder.*

Anything new, any new application, any effective office procedure, even an incident that was the result of an error may be the trigger that sets you off on a new article. An incident makes a dramatic lead for an article, and the sight of someone falling down a flight of stairs may get you busy on an article about floor waxes, or the use of ramps, or safety in the home, or the prevalence of falls in accident statistics, or the engineering aspects of fall acceleration and impact on typical bone structure.

The 3M office copier is the result of a puzzling phenomenon—a leaf on a melting snowbank. That the leaf heated the snow instead of shading it gave the inventor the insight to the process. Even this discussion on these pages may inspire you to write an article on great inventions and how they were inspired! See how easy it is?

Remember, the essential is an open mind ripe for new ideas. Millions of people have walked by millions of leaves on melting snowbanks, but only one was ripe for the invention of the Thermofax copier.

CHAPTER 3

GATHERING INFORMATION THROUGH LIBRARY RESEARCH

Once the idea has developed or the subject has been selected, an author of non-fiction has many sources of information. These include libraries, museums, government records (of births, marriages, burials, military histories, service records, tax payments, land purchases, grants, contracts, treaties, etc), church records, newspaper morgues, corporate reports, and any other place where public records are kept. University archives contain a wealth of unpublished, primary sources of information such as letters, diaries, manuscripts, monographs, and theses. Museums collect old photographs and artifacts. For the researcher, every possible source all over the world may have to be explored. A British newspaperman, asked to write a feature on cat language, found himself flying to New York to read an unpublished master's thesis in the Columbia University Library (and meowing according to the phonetic descriptions, to the consternation of other bibliophiles). The article appeared soon after in a prominent London newspaper. *Alaska Sportsman* magazine regularly uses articles about Alaskan history with information culled from museums–photos of little-known ships, stories of forgotten adventurers. *Cruising World* published a bi-centennial series on historic ship designs.

A classic tale is Patrick Decker's article "The Search for the City of Ragusa" which appeared in *Boating* in 1972. *Boating* often carries first person accounts of voyages in small boats, but Patrick Decker's account is not typical. He did not make the voyage himself, nor did he ever meet the crew or ever talk to anyone who had. Library research was his only source of information.

Decker had a problem: to reconstruct the story of the Atlantic crossing of the twenty-foot "City of Ragusa" to Boston was second-hand adventure at best. He had an adventure of his own in searching for and discovering whether the two-man crew survived the crossing. By skillful cross cutting–an editing device borrowed from the movies–he switched back and forth, revealing the story of the small boat between bouts with bibliographic dead ends and slow mail deliveries of microfilm.

Patrick Decker described his first encounter with the "City of Ragusa" by saying that he accidentally discovered the victualling bill. The victualling bill is one of the official records of the Port of Liverpool. Consumption of bonded stores–that is, tax free whiskey–requires registration. (A ship outside territorial waters is not subject to alcohol and tobacco taxes and those items can be bought tax free ashore providing they are sealed and consumed only at sea.) An added tid-bit of information was that the officer who signed the record was the same man to sign out the Great Eastern on the same day. This added a dimension of dramatic contrast to the information, for the Great Eastern was one of the largest sailing ships ever built, and the City of Ragusa was one of the smallest to cross the Atlantic.

Though he knew that the crew was long dead, Patrick Decker was determined to find out if they survived the voyage. In finding out, Patrick Decker used a number of sources: shipping columns in the newspapers, listing arrivals and departures of ships. You will find such columns in the newspapers of all major ports. Other sources used for the research were *The London Illustrated News, Harpers Weekly, The New York Times, the London Times,* and finally, the microfilm records of the *Boston Journal.* This list does not include the numerous sources Mr. Decker tried without finding anything.

After being spoken of in ships' logs on a number of occasions, the "City of Ragusa" disappeared. The newspapers were full of reports of a terrible storm which wrecked many ships. Decker included some of those to add suspense to the article. Finally, he found a brief entry reporting its safe arrival, and he ended the article with speculation about the reaction of the ship's dog to seeing tree trunks at last. Readers were so inspired that they dug further into library sources and discovered that a year later the same small boat set sail for England, and in another source found that it returned safely.

The point here is that the library researcher had to go to a great number of sources on both sides of the Atlantic, and that he constructed his article with great skill, telling both his adventure in research and the adventure of two long-dead seamen and their dog. Library research, though often frustrating and tedious, can be exciting.

It is fallacious to assume that just because information is stored in libraries it must be known. Einstein's Theory of Relativity was published and lay ignored for years. The world wasn't ripe for it.

Even if the material is old or the identical subject has been presented many times before, in the publishing world there is always a place for a fresh look at old information. The reader of the article may be new to the subject, even if the subject is old. You can be certain that articles on how to anchor a motorboat will appear in boating magazines year after year. The same goes for articles on safety, first aid, fire protection, and maintenance. All that is needed is a fresh look and a new slant.

The scientist contemplating a new experiment first reads what has already been published. As you do that in your own research you may discover something that the public has forgotten, perhaps a discovery the world wasn't ready for then, but is ripe for today.

CHAPTER 4

GATHERING INFORMATION BY INTERVIEWS

Interviewing is an art that requires skill. Occasionally on television you will see a hapless and harassed journalist desperately holding his position at the head of a mob of other journalists while he thrusts a microphone at the mouth of the Soviet ambassador and asks (having carefully rehearsed and reworded this many times), "Mr. Ambassador, in view of the difficulties encountered in the current arms-agreement talks, do you expect to be able to resolve the differences between the United States and your government?"

At last he got the question out! For hours he has been waiting at the airport with the camera crew, arguing with officials and security personnel who didn't want to let him on the field, and trying to beat the other networks.

The ambassador answers, "It is possible," and hurries through the mob toward his waiting car, protected by a human buffer of secret service men.

This could by your fate, too, if you do not ask the right questions. That pained look the journalist gives the camera as he signs off, "This is Walter Gesundheit at Kennedy Airport" is full of the anguished knowledge that, having gotten nothing for an answer, he may not get another chance to ask a question. True, he cannot call back that ambassador, now sighing with relief as the limousine speeds away, for once an interview is over there probably won't be another chance to fill in the blanks. The same can happen to you, for few people have the time or money to make repeat interview trips. You usually get only one chance. You must set things up for success.

Make an Appointment

The person you interview for a trade or scientific article is probably a busy businessman, engineer, or scientist. Chances are, both of you will be in the same place only once. The interviewer may know relatively little about the subject, yet must ask intelligent questions which produce the key information, information which when correctly presented for a special group of readers, will not only make sense to them, but inform. This is not as difficult as it may seem.

To avoid arriving unexpectedly and being interrupted, make an appointment. Schedule at least one hour, preferably two, in the morning between the arrival of the mail and lunch. If you are not lethargic in mid-afternoon, after lunch is a good time. Too early, and you'll be interrupted by the mail. Too late and you'll find people eager to go home and mentally already gone. Don't arrive just before lunch on the gamble that you'll be taken out to eat or you may find yourself dismissed after half an interview!

Conducting the Interview

First one must be able to focus on the subject with enthusiasm and intensity long enough to write the article. It is not good to tell yourself, "But I'm not interested in fluidics (or hog manure, or microcircuitry)." Anyone with a spark of intellectual curiosity about the world should be able to fan it into a flame. This enthusiasm and curiosity will have a good effect on the person being interviewed: you're excited about his specialty, and that is flattering. He will want to tell you everything.

Second. Now that you've got him talking, remember that you don't want to know everything. As quickly as possible you must decide on the theme of the article, sometimes known as the angle, and see to it that that aspect is fully explored to the last detail. Few editors are satisfied with a rambling "shotgun" story that throws pellets of information all over the place but wouldn't penetrate a sheet of paper. If you do not confine the interview to the essentials, your subject may wander off into stories about the good old days at the plant when his grand uncle was still alive and played pranks, etc, etc.

Third. Do not waste time. Those ancedotes mentioned above may be cut off abruptly by a telephone call, a meeting, or a more important visitor. The ideal interview for a 1000 word article should take about an hour. It should not take more than two hours unless it involves extensive facilities tours, photo setups, and several people. People have limited attention spans and limited energy. Productivity falls off abruptly after an hour and a half, and if you bore your subject he will resent the imposition on his time and look for a reason to escape.

Do not waste your own time, either. Your subject may be looking for an excuse to get out of the office, or to spend some expense money taking himself to lunch with you as an excuse. On one occasion I was nearly trapped into what could have been a four-day junket, at my own expense, visiting French tractor dealers with an assistant manager who dearly wanted to get out of the office. You do not invest a week's time in an article that pays two days' expenses. It takes tact to shut off an endless interview, and you must not hurt your subject's feelings because manuscript approval may depend on his good will.

Fourth. Ask questions that draw on insight and experience. Asking for the solutions to the most difficult problems will reveal the essential core of most articles. The hardest part of silk screening crew shirts was finding the right pigment, remember?

Finally remember to ask if there was anything you missed. Review the process, piece of equipment, or discovery in your own words. What you leave out may have been missed in the interview. If you misunderstood, now's the time to find out.

Photographs

Few articles are complete without photographs, and they are often part of an interview. Every technical writer should have some competence with a camera, as our first chapter stated. Here is where you need it. You usually need a photo of the person you interview. Make it typical. There is nothing quite as dull as photographing a person at his desk. Use appropriate props. If there's an unusual object, model, sample product, stuffed fish, shrunken head, or other artifact in the office, include it to add interest. If possible, get the photo in a work environment-construction site, assembly line, laboratory, etc. Get in close and avoid clutter. Try unusual angles, but if you stand on a chair, don't leave footprints and do put the chair back afterwards.

After the interview. Review your notes as soon as possible. If your subject consented to your making a recording of the interview, listen to it. Sometimes loud machinery blanks out part of the conversation, and you may still remember what took place. If you took written notes, fill in the gaps before your memory fades. Review your notes in the parking lot before you leave the premises. It is easy to assume that you will remember something, but it is very frustrating to stare at a sheet of meaningless notes if you've waited too long to review them, or listen to a tape that is blank because the microphone was switched on but not plugged in. I saw just that in a filmed TV interview showing a mob of near hysterical reporters chasing their subject.

Follow-up. Confirmation and approval of the article are where your interview errors can cause you trouble. If you were tactless, threw flash bulbs on the carpet, and disrupted the office you may have trouble getting approval for publication. Unlike newspaper writing, which has a short time span from interview to print, trade and scientific articles take months to get into print. You must obtain approvals for most articles before the manuscript is published. The usual interview article must contain a number of good quotations, pertinent and original, revealing the situation and the person interviewed. Here the delay in publication works to your advantage. If the subject never quite said exactly what you've put in quotation marks the approval process solves that. If the subject approves the text for publication, he said it.

Things that go wrong

You may run into a number of problems. Obviously, the exit ramp is a poor place to interview the Soviet ambassador, and you wouldn't plan one of those, but don't arrange a lunch interview unless you're prepared for indigestion. One of my worst interview experiences was at the lovely Mermaid tavern in London. This should have been a delight, but I sat at the bar with the export manager on my left and his assistant on my right, taking turns—one talking and the other eating— while I, in the middle, tried to take notes, eat, and ask questions all at the same time. Just recalling that scene gives me an upset stomach.

Sometimes everything goes wrong. You write to arrange an interview, phone upon arriving in town to confirm, arrive at the place, only to be given the bum's rush. It could be worse: you could conduct the interview, write the article, prepare the pictures, have the editor's enthusiastic approval, only to be turned down by the subject because he didn't like what you said about him, his product, or his company. Don't despair. Figure out what went wrong so you won't make the same mistake again. That's called learning by experience.

CHAPTER 5

WRITING FOR YOUR READER

Before a writer begins to write his article, he must determine who the audience is and what language is appropriate. This creates special problems for the trade and scientific writer, for some technical material demands a great deal of translation if it is being adapted for a general audience, and other material must be couched in language you would not normally use. Jargon may be used by people in a profession to make them "insiders" and exclude others, but plain language will be understood and is probably better.

If you are writing for a magazine, the first thing to study is the articles of previous issues. How technical is the language? What knowledge is the reader assumed to have? What words are defined because they are new, and what words have a narrower definition in the context than you would expect? Is there a heavy use of acronyms? Did you understand all of it?

What about the voice? Is there heavy use of the passive voice? Is the writing impersonal, without indicating anywhere that it was written by a person? Or does the personality of the writer show through by the use of anecdotes, asides, footnote comments, and personal pronouns? Is the publication formal, without contractions such as "can't," or does it make use of personal words and informal constructions? Does the writer seem to wear a swallowtail coat or a torn "T" shirt? Each publication has its own character.

There is no substitute for a study of the publication itself. It is also a great help if you have checked it out in *The Writer's Handbook*, *Literary Market Place*, *The Writer's Yearbook*, or one of the writing magazines such as *The Writer* or *Writer's Digest*. All list markets, and some editors' comments very clearly state their expectations and taboos. The magazine itself, besides containing articles, also usually has advertising which helps you identify the reader.

How does advertising do that? Because advertisers spend money with care in order to reach as many customers as possible for the lowest cost-per-thousand readers. If a magazine contains advertising for radar, monel fastenings, heavy winches, floats, refrigeration equipment, and trawler nets, you know the reader is a commercial fisherman.

Being able to adapt material for a variety of audiences means a writer is versatile. It also means that he can sell the same information several times not the same article. Research takes a great deal of time and expense, and if the same research can produce more than one publication, you get a greater return on your investment.

An example of adapting the same material for different audiences came out of my interview trip to the St. Louis Aeronautical Chart and Information Center of the U.S. Air Force. When I learned of the chart center, I knew there had to be a story there. A large, factory-like complex, it is where charts of the moon are printed, as well as bombing run maps for air strikes on Peking. The first is a subject for a typical newspaper Sunday science feature; the second is off-limits to unauthorized personnel. But I was sure that there was a story for blueprinters, because some make maps and I had done several map-making articles in the past.

What I learned proved to be of interest to more than one audience. It was a technique for embossing terrain maps on printed vinyl. At the map center, this embossing was part of a larger process of creating authentic shadows on an aerial map, shadows that were more accurate than an air brush operator's imagination would consistently produce. The embossing method was innovative, yet basically quite simple and blueprinters could easily offer such terrain maps as an added service to their customers. The result would be an attractive three-dimensional map showing hills and drainage.

The articles were produced, one called "Relief Maps Made Easy" for *International Blue Printer* and the other "Relief Map School Project," for the *Bulletin of the Illinois Geographical Society*, a journal for teachers of high school geography.

The article for *International Blue Printer* began with a newspaper style 5W & H paragraph that said who was doing what, where, why, and how. The process was described, and the reader was reminded that he could do the same by the sentences:

> . . . The by-product is a technique that any map-making blueprinter or reproduction department

might use in making relief maps. It's surprisingly easy . . .

. . . A map maker using true-to-scale might do the same, printing a reversed but carefully coordinated duplicate on the backside of the map.

For the *Bulletin of the Illinois Geographical Society* the article began by relating to the reader's special needs:

The ideal high school project should provide a maximum of education for a minimum dollar investment, and the skills required should not exceed the capabilities of the students. Just such a project is the making of three dimensional relief maps according to a process developed by the U.S. Aeronautical Chart and Information Center in St. Louis, Mo.

What followed was the same basic process description, except that the finished product was adapted so it would be suitable for the teaching of geography.

The language of the article was changed, "true-to-scale" is a term known by blueprinters. Such items were left out of the version meant for school teachers. The technical steps in the process, I advised the teachers, could be taken to a blueprinter, leaving the embossing and painting processes for the students.

These two articles brought a process out of the confines of the St. Louis chart center and made it available everywhere. Since so much of the activity there is of limited public access and interest, the public relations officer was very pleased with the civilian spinoff.

It is not difficult to adapt information for an audience, and when the reader knows you've written expressly for him, you communicate more effectively.

CHAPTER 6

TITLES

Editors know that titles, along with cover pictures, attract readers and persuade them to take a magazine off the stand. Trade and scientific articles do not usually have to help sell the publication, but they have a more important role: they must describe the contents so people in search of information can find it. *Popular Mechanics* may very well title an article, "Hottest Thing on Three Wheels," but the person who finds that in the *Reader's Guide to Periodic Literature* would be hard pressed to know if the title described tricycles, a drag racer, or almost anything on three wheels.

The subtitles found on tables of contents are sometimes equally vague. "Hottest Thing on Three Wheels" might have a subtitle like, "Dan Gurney's Latest Speedway Thrill," which doesn't say very much either.

A title should describe the contents. You wouldn't be happy with a product labeled "Zap! World's Greatest Additive" for that doesn't say whether you should spray it under your arms, put it in the gas tank of your car, or sprinkle it on your breakfast cereal. The editor of one technical journal proudly pointed to his choice of article titles, one of which was "Batteries." Though the subject was, indeed, batteries, the title was not very useful for someone searching for information. "Batteries" could describe nickel-cadium batteries for diesel-electric locomotives, transistor radio batteries, something new in lead-acid battery design, or any one of innumerable articles on battery-related chemistry, production, engineering, or application. "Batteries" is not enough.

The more scientific a journal is, the more the titles need to be useful as a guide to those using abstracts and information retrieval systems. The amount of publication in scientific subjects is so vast that the person seeking information does not leaf through journals to find the title of his choice. Instead, he turns to a publication like *Chemical Abstracts* or punches key identifying words into a computer which retrieves all information on transistor radio batteries published in the last three years, supplying it on aperture microfilm cards which are then scanned for possible hard copy printout. The titles, then, serve not only the readers of the journal, but the librarians who must fit the article into the information bank. On the other hand, trade journals, like *Plan and Print* are not normally abstracted and are not a primary source of research information.

Still, when it comes to publishing, the author needs to sell the editor on the article. The typical scientific article title is dull and, to laymen, even unintelligible. When I wanted to place an article in *Technical Communication* magazine, I studied the previous issues and discovered that the titles were dull. Working on the assumption that the editor too had found them to be lackluster, I offered "Seduction of the Reader's Mind: The Technical Article as Striptease." This different view of structure in an article sold the editor.

It also sold readers. Abstracts of articles in *Technical Communication* are published world wide, and requests for reprints of the article come in from places in the United States, England, and the Phillippines! The title had done the job.

When I interviewed the managers at Van der Grinten in Holland and learned that they "never wanted to be real businessmen" the claim seemed a bit ludicrous, in light of the massive industrial conglomerate they control, so my original title was "Capitalists in Spite of Themselves." This was mildly offensive, and had it not been for the congenial nature of the people I was working with, the title would not have been considered. They amended it to "Businessmen in Spite of Themselves." and the editor compromised with "In Spite of Themselves."

The use of alliteration in titles is a trademark of *Variety*, the show business publication, and if it is not overdone alliteration adds punch to some titles. Some of mine have been "Coping with Credit," "Map Mounting," "Making Music," and "Peddler to Practitioner." A title may also have a rhyme in it, such as my "Having a Ball in Montreal." A play on words can work, too. "Making Music" was on preparation of sheet music. "Bubbly Bus" in *Weathervane* was about a plastic bubble dome on a VW van, not a bus that blows bubbles. Whatever devices are used in the title, the effect on the reader should be subliminal. If the tone of the title is inappropriate, or if it sounds too gimmicky or like a trick, it may be dismissed as too cute and cast a shadow on the contents. Serious subjects don't deserve gag titles, or dirty jokes.

Ultimately, the title is determined by two things—the content of the article and the publication it is to appear in. Editors have a way of changing titles, an easier task in some ways than blue penciling a difficult paragraph, for you can change a title without upsetting the structure of a piece. What's important though is that the title is not misleading, is related to the contents, yet at the same time attracts the reader.

CHAPTER 7

LEADS AND ENDINGS

No piece of writing can achieve its purpose if it is not read, and the first step in achieving that goal is getting the attention of the reader. The old joke that mention of deity, royalty, or sex will get the attention, with the student writing the sentence, ' "My God," said the Duchess, "get your hand off my knee!" ' is not far from true, but it is a tactical error to begin with, "SEX! Now that I've got your attention, let's talk about lead pencils." To promise the reader something and then trick him does not make him receptive. But you do need to get the attention of the reader and there are several traditional ways to do that.

Rhetorical question. A typical rhetorical question opening is "Can you recognize cancer's seven danger signals?" It doesn't anticipate your answering, but you do expect a list of seven to follow. The rhetorical question, because it does not expect the reader to answer, is old, artificial, and weak, but it is still used.

Establish atmosphere. The author can get the reader to ask a question himself if the lead is dramatic and establishes an atmosphere of suspense. The reader wonders, "What's happening?" "What will happen next?" Such openings often appear in the *Readers Digest*, usually with a two-paragraph dramatization, setting up a jumping-off place for the discussion to follow.

A typical *Readers Digest* opening might be:

> Only the technical writing office at Snoopy Aircraft was lit. The staff was busy collating the last copies of a five-hundred page proposal for a new government contract. The competition, it was generally assumed, was proposing a new triplane. Snoopy Aircraft's proposal was for a biplane.
>
> Suddenly the director of the technical writing department stopped, paralyzed. The unfinished proposal fell to the floor and he collapsed on it with a groan. The director was another victim in a growing epidemic of nervous collapse among technical writers . . .

What follows is a discussion by a medical doctor of the causes and cures for Proposal Paralysis.

The *National Geographic* is more dramatic, and typically opens with something like this:

> I suddenly awoke and sat up. Automatically I had reached for the loaded carbine that always lay ready beside my cot. It was gone. Looking out of the tent I discovered Mogumba, *n.*, guide, looking into the jungle blackness.
>
> We were camped along the River X in search of the rare tsetse bird . . .

The danger is that this kind of lead, if used too often, is easily parodied. Only certain kinds of journals can use it.

Startling statement. A good way to get the reader's attention is the startling quotation. Quotations are essential in articles dealing with people, and an astonishing quote or fact is effective. Such an attention getter is "This year over 100,000 children will be poisoned by household products."

Least dramatic of the leads, but typical of scientific writing and technical reports is the simple statement of the problem. The next two chapters, "The Thrill in Business Writing," and "Seduction of the Reader's Mind" have such leads. Even the simple boating project article, "Make Your Own Crew Shirts," which is basically a description of a process, begins with a statement of the problem, "Silk screening shirt emblems is a great family project for stormy or winter weekends at home." Notice how that title relates to the reader.

Relating to the reader. Once the lead has the attention of the reader, the article must hold that attention. It is not enough to adapt your language, vocabulary, and tone to the reader. You must persuade him that the information you are presenting is useful to him. The crew shirt article follows the opening sentence with reference to family.

> Kids can take part in all stages, since it is a simple and rewarding process. You can put any type of emblem on sweatshirts, "T" shirts, life jackets, cushions, sail bags, sails, on anything you want identified.

The readers of *Boating* have plenty of life jackets, cushions sweatshirts, etc, which could make use of the process described. If the article weren't useful it would not have been published.

Endings. It is not always necessary to have a formal conclusion to an article, and some appear simply to stop. It is irritating and unsatisfying, however, to read to the end of an article and expect to find more on the next page, or to be unsatisfied because the author has not given you the information he promised at the beginning. A summary paragraph reminds the reader of the main points that have been made, reenforcing and emphasizing the message. In a speech it is important to tell the listening audience the information three times because people do not remember what they hear as well as what they read. A support order scientific paper, opening with a statement of the problem, showing the steps toward its solution, and summarizing with a conclusion, is a well-ordered repetitive document that should leave no doubt that the reader got the message.

The "frame" structure of an article, described in chapter nine, ties the conclusion to the situation described at the beginning. This return to the starting point gives the reader a sense of completion, rounding off the article like a fine meal followed by a dessert, coffee, and an after-dinner cognac.

Consistency of tone and theme. In selecting your lead and your conclusion, be sure that the language is consistent with the intention of the article and your audience. The lead establishes a tone. A serious article doesn't begin with a joke. The article, "Size Standards and the Common Market," which is described in chapter eight, established a theme of change which was held consistently through the piece. Without that unifying theme of change the piece might have been a dull discussion on the changing of rulers scaled in inches for meter sticks.

Unity is important in any piece of writing. Everything in it must belong. If it does not, it distracts. Careful choice of lead and conclusion, consistent with the intention of the article, will wrap it neatly into a satisfying package. For a more detailed examination of the crucial middle, go on to chapters eight and nine.

CHAPTER 8

THE THRILL IN BUSINESS WRITING

When you write for the business and semitechnical press it is easy to forget about people. It is things that are the subjects of the typical articles: new equipment and plant stories, processes, time saved, sales promotions–all are about things and are ultimately concerned with profit. They should be, for men go into business to make money. Business is a challenge to their ingenuity, imagination, and energy–qualities successful businessmen must have. But there is also a thrill to discovering a new machine, solving a tough problem, or finding new ways to attract customers. The thrill should be part of the article.

Yet the journalistic demands on the structure of a trade article seem to eliminate suspense. The first paragraph grabs the reader's attention with a situation only to have the second paragraph tell where and to whom it happened. Just as in newspaper pyramid style articles, and as in classical tragedy, the ending is known; the middle is not. It is in the middle of a trade article that the real excitement lies.

Let me give you three examples out of *International Blue Printer* (now called *Plan and Print*). One is a problem-solution story, one a new development in the industry, one a low-key company history.

> One October, Lawes Rabjohns of London, England, got an extremely large blueprint order that had to be done and delivered to Geneva, Switzerland, in five days. The blueprints, if laid end to end, would measure ten miles and the shipment would weigh nearly a ton. It was delivered two days ahead of schedule without discrupting normal shop traffic.

There you have it in three sentences, but an abstract is not a story. The first paragraph of "Airlift to Geneva" was a standard attention grabber. The second said the job was done and by whom. In the middle of the article, besides telling the facts concerning how it was done, I brought out the bottlenecks and frustrations that gave the story human interest:

> Then a crisis occured. Customs wanted to "check" the tracings. At the vital moment when every hour counted, a delay might mean failure. Offices were closed. Officials were already spending a cool October weekend in fireside leisure. Could they be reached? Would they agree to let the drawings through. . .?

The next crisis was in folding ten miles of drawings.

> . . . Everyone from the sales staff and van drivers to publicity was recruited for folding, which went on through the night at all three locations. While Big Ben tolled hollowly above the deserted expanse of Victoria Street, the Abbey House reproduction rooms were bright with light. The folding went on. At 8:00 a.m. on Sunday, all branches confirmed that printing and folding were completed. . .

This is neither sentimental nor fake drama. These are facts. But they are dramatic, human facts. Readers not only learned how a tough job was done, they also got to taste some of the satisfaction of the achievement and sense some of the weariness mixed with relief when everyone went home that early Sunday morning in downtown London. Why shouldn't a business story be exciting? Business is.

It is possible to make even a dull subject interesting. Conversion to the metric system was the subject of "Size Standards and the Common Market" in *International Blue Printer.* Its opening and closing paragraphs were a human interest "frame" around a basically dull subject.

> (Opening paragraph) "The weather in Scotland tomorrow will be showery with snow on high ground. The temperature during the night will fall to zero degrees Centigrade–that's 32 degrees Fahrenheit–and in some places . . ." Centigrade! Fahrenheit! The BBC's broadcasts show that the Common Market has shaken Britain to the very core–even discussion about the weather has undergone a conversion.

The middle of the article is full of tables, scales, and conversion details on paper sizes. The last paragraph states:

There is no doubt that old ladies will regret the passing of Fahrenheit, but school children will be delighted with a shift to just plain liters and kilograms after years of studying avoirdupois and apothecaries' weights, pints, gills, and drams, The disappearance of "Double Elephants" (a paper size) in favor of German-designed AO's is something that even Hitler could not cause, but when paper coaters have absorbed the cost of changing from the 40-inch wide rolls of paper they will have reduced waste and achieved a new efficiency. This conversion to continental standards will also help the British sell within the Common Market.

Besides the beginning and ending, other bits of human interest were included in the middle of an otherwise dry story. What does a change in paper size mean to a draftsman? Frustration: his drawers are too small or too big. To manufacturers? They may sell new tables and storage cabinets. It is this kind of insight that is more personal to the reader than a mere series of size standards charts. Remember the men behind the job; their frustrations and triumphs will be appreciated by your reader.

Human interest in a story is as important as a person is in a photograph of a machine. It helps relate the reader to the subject. Probably the most difficult assignment I had from *International Blue Printer* was to do a story on a Dutch chemical manufacturer, Van Der Grinten. Histories and puff stories were taboo. I could not openly plug the company's product line, had too many people involved for a biography, and the usual company history is only interesting to the person it is about. This dilemma was solved by Dr. Karel Van der Grinten himself with an attention-grabbing quote that became the opening of the article and established the theme for "In Spite of Themselves:"

> "We never wanted to become real businessmen. All we wanted to do was to make enough money on the licenses of our patents to be able to run a nice laboratory."

That three generations of Van der Grintens seemed both unwilling and unable to make a profit was a new twist. Combined with lively and vivid anecdotes about the family, the theme of "In Spite of Themselves" was an entertaining story that unobtrusively gave Van der Grinten some soft-sell publicity without trying to sell anything or causing the editor to be bombarded by advertising wanting similar treatment. Included in the Van der Grinten story were human details:

> Butter color was a big chance for grandfather Louis Van der Grinten. He knew nothing of business, but when Sam Van den Berg, one of the founders of the present big UNILEVER concern, came to offer him 1000 guilders for the formula, Louis might have sold. But his wife said, "Sam Van den Bergh came to you to buy the formula? Then there must be money in it. Don't sell." He didn't. So Sam Van den Bergh became a customer. . .

The butter color played a part in the "frame" of this story, turning up in the last paragraph:

> Not every invention has commercial application. Louis' painstakingly developed method for decanting the dregs from wine is likely to remain forever a secret. And what about the butter color that started everything? In the oldest part of the ivy-colored factory whose red bricks bear the scars of the war, eight men still make the butter color. But it's nothing to get rich on.

Tightly-woven themes and "frames" that round out the structure of an article are points practiced by most trade-article writers. The kind of detail that seems insignificant, the personal problems and crises of employees, are usually left out. Yet personalities are the fulcrum success hinges on. It is people whose imagination, energy, and insight make the profit in business possible. Sure, an article must contain information. This doesn't mean it can't include people. It is not machines, but people who will be reading it.

CHAPTER 9

SEDUCTION OF THE READER'S MIND: THE TECHNICAL ARTICLE AS STRIPTEASE

The technical article may be compared to a striptease by which information is gradually revealed, paragraph by paragraph, until the whole truth is exposed. Though the purpose of a technical article is to convey information, its presentation can be made more effective by the application of certain techniques that make use of the human psychological pattern of tension and climax. The role of the paragraph in the total structure of the technical article is vital. In fact, the process of the technical article is parallel to both fiction and the striptease.

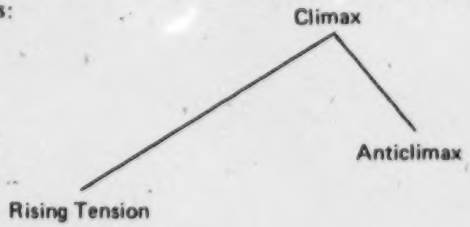
It should come as no surprise that an article is compared to fiction. Remember that articles are often referred to by editors as "stories". There is good reason for this. A process description is in reality a story of how, for example, offset lithography works. Cause and effect, another common approach to the technical article, is similar to the detective story in which one pursues the solution by inexorable Sherlock Holmsian deduction. It is also logical that a reader whose interest is held by what he reads is more likely to read to the end and to retain what he has learned. There is no need for the technical article to euphemistically underplay the drama by writing, for example, "The experiment was concluded by an unexpected high pressure wave" when the fact is that it exploded. It is not necessary, unless it is incriminating, to hide the drama in the situation.

In fact, the nature of language forces us to be dramatic. Language, either written or spoken, is linear. You cannot get the whole message in one glance as you do from a photograph. You cannot tell it all at once, either. The process of communication by the written word forces us to reveal information by degrees, just as a striptease reveals its subject by degrees.

The suspense forced upon us by the linear nature of language is particularly obvious in the periodic sentence. To consciously make use of the periodic sentence for the sake of holding your reader's attention is useful but must not be overdone. The periodic sentence in large doses is ultimately exhausting, for it requires the reader to wait until he gets to the end of a sentence to find out what it is all about.

Robert Louis Stevenson in his "Elements of Style" compromised in a tantalizing way. He described the weaving of a web by which knot by knot the reader was entangled in suspense. Stevenson's basic tool was the sentence. He wrote that each sentence proceeded until it came to a hesitation, or knot, then rushed to the end. Coldly restated, it means that the ideal sentence is first loose, then introduces, like this one, an element of periodicity, and is loose again. This method is not exhausting to the reader, for there is endless variety in the mixture of loose and periodic elements.

That knot in the Stevenson sentence can be called the climax of the sentence. Diagrammed, climax structure is this:



This simple diagram describes a basic human emotional pattern. The linear nature of language has forced us to be dramatic. Now the universal emotional pattern for the human being takes us further. The diagram is the same as the human emotional pattern for sexuality and applies just as well to short stories, sports, and even architecture. Climax first is not very satisfying, for it is followed by too long a tapering off of interest and provides inadequate preparation for true emotional impact. A baseball game is less exciting if the only run is made on the first pitch instead of the last. The stripper, too, does not entertain us very much if everything comes off at the start. Even the famous Rose La Rose tried, as a variation, by starting off in the nude and dancing into her clothes instead of out of them, but it was only gimmickry. She tried to reverse the diagram or perhaps turn it upside down, without much success.

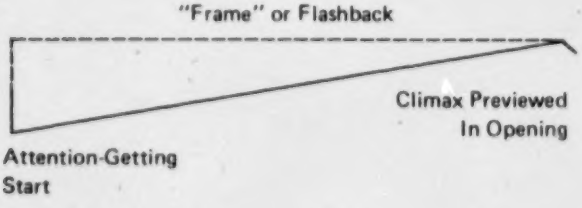
Climax without anticlimax is too abrupt. Frank Stockton's famous short story, "The Lady or the Tiger?"

is a useful example. In this story the captive young man is placed in an arena which has two identical doors. Behind one is a hungry tiger. Behind the other is a willing girl. He finally decides on a door and throws it open.

That is an example in literature of the withdrawal method of contraception. We never do find out which door he opened. There has got to be an anticlimax, a concluding paragraph or at least a sentence for a proper sense of completion. O. Henry's surprise ending stories, too, ultimately alienate the reader because that basic emotional pattern of human behavior has been abridged.

In the usual short story, of course, the climax is unknown at the beginning, and in the technical article, highly refined with its standard structure and informative abstract, the conclusion is foregone. But the summary is not the story. If it were, all the world's novels would be just as satisfying if they appeared in abstract forms between the covers of a single volume. Yet a similar structure does exist in fiction–the conclusion stated first–and the result is still satisfying.

The structure is called the "frame" or the flashback. The "frame" creates a situation at the beginning and uses it in the conclusion for its sense of completeness. The flashback, often used in suspenseful radio scripts, gets attention presenting us with an advance glimpse of the climax or a view of things after the excitement is over, returns to the chronological beginning to show how it all came about, and progresses ultimately to the point previewed at the start. An abstract or summary, then, need not spoil the structure. It may be diagrammed thus:



To further demonstrate that a known conclusion, as in a technical article, need not spoil the excitement, consider the task of the historical novelist. A story about Columbus discovering America is not spoiled, even though we know in advance that he made it without sailing off the edge of the earth, because the emphasis is on how he survived and how his character was affected. The reader of the technical article or report also knows the result. His interest is held by the drama in the means of reaching that result.

A novel, like a three-act play, can be broken down into scenes. The situation laid down at the beginning of the first scene is changed by something that happens so that by the end of that scene the situation is different. This calls for still another scene to resolve or further complicate as we follow the plot line. Each scene has its own climax.

In the technical article, much shorter than the novel, the basic building block is not the scene, but the paragraph. Each paragraph in our striptease analogy can be compared to the tantalizing process by which our dancer (the writer) removes, for example, a glove.

Each paragraph, like an episode in the plot, should be carefully placed in the sequence of events. Like a veil being dropped, the paragraph reveals information. There is no point in dropping the seventh veil before the first six have gone. The tease is in the gradual exposure of the ultimate truth with small added glimpses to show us that this veil, indeed, is a step forward. For this, the paragraph needs climax. But how does it work?

The reason the paragraph is a paragraph in the first place is that it contains more information than can be presented effectively in one sentence. The thesis statement must be explained. But in explaining the thesis, a slightly altered, somewhat new situation is created, just as the dropping of veils progressively holds our interest, satisfies, and leads us on to more.

There are several elements to be found in a paragraph. There is the thesis statement, the generality which may be the conclusion. It may be explicit (stated) or implicit (implied). In technical writing where ambiguity is undesirable the explicit statement may be better. If it is stated it is less likely to be misunderstood. There is also a transition to link the paragraph with its neighbors in the sequence.

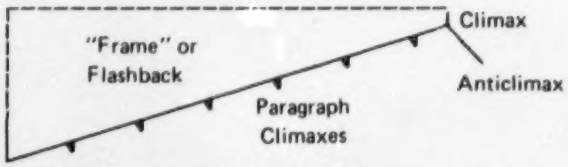
The placement of those elements in a paragraph is important. Two places where information is emphasized are at the beginning and at the end.

The strongest position is at the end, for, as in the periodic sentence, placement of the key word or fact at the end gives us time to put the pressure of focus on it. The second most emphatic position is at the beginning. This is the first part of the sentence or paragraph that we see, coming after the pause marked by the period or paragraph break. If you bury your important word or fact somewhere in the middle, you not only lose emphasis. Your point becomes elusive and your writing dull. Rewrite it or you'll lose your reader.

Having rewritten the sentences so the focus is in the right place, consider the climax of the whole paragraph. Try this with a paragraph you have just written: take a

pair of scissors and separate the sentences from each other. Now rearrange their order. Does the paragraph make the same sense as before? If it does, they were not a sequence. If it does, you are not linking the sentences with adequate transitions and you are losing the thread you need for paragraph impact and climax. Keep rearranging until the emphasis is on the most important idea you want to communicate. If you do, you will not only hold the attention of your reader; you will make him want to read more.

That is how the structure of the paragraph itself plays a roll in the grand design of this seduction of the reader's mind. The writer wants the reader to stay for the entire show, not to walk out in disgust because there is no art in the performance. The information of the technical article can be as exciting to its specialized audience as fiction. Now the diagram has become more refined:



Each paragraph has its own climax and on reaching it, it does not stop but proceeds with a foretaste of things to come. With anticipatory transitions each paragraph's miniclimax in this striptease leads us further toward the ultimate peek.

If you have come this far, you have succumbed to this seductive process. The structure of this article fits the diagram. Though the conclusion—that the article is similar to fiction and the striptease—was stated at the beginning, what was most important in this explanation was how that original statement proved valid.

CHAPTER 10

REWRITING

Rewriting begins with prewriting. It is far easier and less painful to make changes and corrections before you have committed many words and long hours to paper, just as it is easier to change the plans for a poured concrete basement before, not after it is built. There's something painful to the psyche to ruthlessly discard a paragraph of your own golden words. Remember, even Moses had to go back up Mount Sinai for another copy of the stone tablets with the Ten Commandments. How chagrined he must have been!

To avoid that chagrin, plan your work carefully before committing words to paper. Once you understand the pattern of the technical article genre it is much easier to arrive without mishap. Remember, you're not inventing the vehicle; it already exists, forged by the conventions of journals into a more or less fixed length, and hammered by habits of readers into certain fairly established forms. You know from the start that you need a theme or angle. Begin with discarding material that doesn't belong. Only very condensed and limited personality sketches, history, or ancedote can be accommodated, if at all, into the typical article. Most articles are descriptions of processes or equipment. This entire handbook is really a description of a process. Once you fix on that, the extraneous matter falls away.

You need an abstract. You'll be rewriting it after the article is done, but it helps to focus on the subject if you write an abstract first. Does the abstract describe what you want to write? Does it omit something you want to emphasize? Later, when your draft is finished, you'll read the article and compare it with the abstract you began with. Did you accomplish what you intended? If not, two extreme alternatives are: one, write another abstract that fits what you actually wrote, or two, write an article that does fit the abstract. The first alternative is easier. Actually, you shouldn't have departed that far. More likely, in rewriting you'll change both—abstract to eliminate things that didn't materialize in the article, and article to suit the abstract if you've meandered from your intended course or changed the emphasis unintentionally.

Outlines are useful for some people, especially beginners. In time you'll be so used to the basic form that, like the experienced boatbuilder, you'll watch it grow under your adze, based entirely on something in your head. The outline, however, is very useful, for it unclutters the mind. Once you've got the lead, or opening paragraph—which may be tied into the conclusion if you've decided on a frame type of structure—you'll be progressing chronologically (if it's a process) or spacially, perhaps (if it's a piece of equipment you're describing). Both are very logical methods and lend themselves to steps. Number the steps, with a thought to subheads later in the finished text.

Those subheads save mental energy, for once you've broken down your writing problem into parts A, B, and C, you know where you're going. You don't have to think about the mysterious and hidden conclusion. You're not groping in the dark. So you can temporarily shove parts B and C aside while you concentrate on A. And if you have trouble getting started, and really are rearing to go with part C, go ahead and write it first. You know where it belongs in the finished article, and getting started where you're hot is much better than facing a cold, blank sheet of paper. When all the parts are written, then you rewrite, making them fit together.

Up to now you have written A, B, and C separately, like a handful of links. Now you have to work on the transitions that hold them together. The transitions are essential, for they tell your reader that he is making progress. Your abstract or statement of purpose tells the reader where you're going. It's good psychology to reward him by indicating that he's getting where you said he was going to go. Moreover, good transitions pull the reader along, out of part A and into B.

You can get into trouble by writing a beautiful part A and a tight transition to part C. Then, on rereading, you discover that you skipped B. Taking the welded links apart is hard work.

If you are being paid for the article by the printed page and fear it will be edited into a highly condensed morsel, those tight transitions will be hard to blue pencil. Your writing will be so carefully constructed that the editor will be inclined to leave it whole rather than struggle with his own revision.

One aspect of that tight writing is careful reference to your illustrations. There's no point in including a table if you haven't referred to it, or a photograph unless it is keyed to the text. A useful writing practice is to lay those illustrations on the desk in front of you and keep them there while you write. Seeing them will help steer your writing to include them. If they are left out, you may want to discard them when you rewrite and revise. Article writing is not to be confused with a padded term paper stuffed with exhibits. Once transitions are tight, opening the text to include a forgotten table or illustration can be painfully difficult.

Once you have checked your content against the abstract and worked your transitions so the paragraphs are welded into a whole, it's time for the final polishing. Read the article aloud. Better, get someone else to read it to you. If they stumble over sentences, get lost, or stammer, your manuscript may be the cause. Mark those rough spots. Some people cannot write a sentence that proceeds clearly and directly to its conclusion. Technical writing is no place for authors of stylistic tours de force like Henry James. Break excessively long sentences into shorter ones, or combine and condense until the sentence makes direct sense.

Reading aloud, too, will expose curious repetitions of sounds and awkward rhymes. Oddly, sounds emerge even in a text that is never meant to be read aloud. It has something to do with the human penchant for patterns and rhythms. (Note "penchant" and "patterns" in the last sentence!) If you have a tin ear for rhythms and write extremely awkward sentences, these will turn up when someone else reads your words aloud. Get rid of all distracting repetitions. Keep the effective ones that drive home your point. The awkward sentence may inadvertently bury your point in the middle when the most emphatic positions are at the beginning and at the end. Since there are a multitude of ways to say the same thing, try some variations. Just don't get bogged down like that character in Camus' *The Plague* who never gets beyond the first sentence of his novel! That can't happen to you, because you began with an outline and an abstract. You knew where you were going and went, taking the reader along with you. When you get there, you'll discover that rewriting was really a matter of effective prewriting, and keeping tabs on your progress as you wrote.

CHAPTER 11

ILLUSTRATING YOUR ARTICLE

Editorials and "think pieces" are about the only articles that do not require illustration. Scientific journals are more likely to use line drawings, tables and graphs (partly because of their low advertising income and limited budgets), but trade journals usually make considerable use of photographs, though cost prohibits most from using color.

There are a number of kinds of graphic aids–pie charts, line and bar graphs, histograms, and tables. Each has its advantages and disadvantages and the author must decide first of all what the illustration is supposed to communicate and how it will be used before making a selection.

Pie charts, often used for illustration of budgets, express proportions well for quick understanding, but do not work for very small amounts, like one or two per cent, nor is it easy to compare similar quantities like 35 vs 37%. A pie chart shows percentages of a whole at a given time, but does not show trends over a long period of time. It is useful, then, only for a quick, general illustration, and is not very accurate.

Bar graphs also show relative amounts, and can be used to reveal trends with, for example, bars for each of several years of wheat production. Different colored, or differently shaded bars can be used to represent different products for a given year, with a set for each successive year. These also give a quick picture, and are easier to make comparisons with than a pie chart. But excessively short bars barely show, and excessively long bars may not fit on the graph, requiring a split in the grid to represent the gap, allowing the bar to be squeezed.

Histographs make use of small figures, such as symbols for coal mines, wheat sheaves to signify grain production, small ingots to represent mines, etc. These are limited to use on maps, because if they are tried as substitutes for bars on a bar graph, it is difficult to estimate sizes. On a map, a large ingot might obliterate the country whose production it represents! Making histograms may be facilitated by using dry transfer lettering sheets, for sale in drawing equipment shops, but unless you're an artist it doesn't pay to waste your time making a fancy histogram. The temptation is to do it in many colors, but the editor probably won't invest his budget on color, and only a commercial artist can be expected to do a credible job.

Line graphs are among the scientist's basic tools for dealing with data. These are exact, but if they have more than three lines become difficult to interpret, and take some study. They are, however, far more useful than tables as visual aids. Line graphs are the best compromise between more illustrations and data accuracy.

Tables, especially those offering interpolations, can be quite exact and filled with maximum information, but need to be highlighted to aid a casual reader's interpretation. Tables are hard to read, and like the line graph are tools for the researcher. Tables do not merely illustrate; they are used and referred to time and time again. But because their usefulness as illustrations is limited, tables usually belong back in the appendix to a technical report where they may be consulted in verifying data.

Photographs are indispensable to most article writers. Anyone seriously interested in writing trade and scientific articles must be prepared to take photographs. Depending on others who may be unreliable is a chancy business.

"Freebees." Occasionally it is possible to obtain illustrative materials free from the source of the article–from the company, city, or individual involved. Sometimes it is impossible to take photographs yourself because of security measures, a condition typical of military installations or companies using proprietary machinery or processes. I once had the Montreal Chamber of Commerce send a number of pictures that I selected from their files for direct mailing to the editors, and I was delighted in turn when I received a "finders fee" for each photo. It had taken only a few minutes going through the photo files to select the dozen or so appropriate to the magazine.

At first it may seem a great advantage to get photographs supplied free, and it is, if they come through. The problem is that the author has no control over the delivery of free photos. If prints are not already on hand in a file so you can leave your interview with the copies in

hand, you must depend on: one, the source to take them himself or have them taken, or two, the source to remember to have some made and mailed to you or the editor (now where did he file your address? How much can you pester him before he gets mad?) and three, you may have to see that the copies are returned–a difficult task since once you mail the pictures to the editor you have no control over damage or loss as the picture moves to art director, half tone lab, print shop, and back. Some may come back looking like a small child attacked them. (On the other hand, *Boating* regularly returns photos, mounted on special protective covers, looking better than when they left!) It is also a good practice to have the photographs in front of you when you write the article, so the text is keyed to the illustrations. The more pictures used, the more you are likely to be paid for the article. Payment is usually by space, or text plus so much a picture.

Some textbooks advise free-lancers to make a deal with a free lance photographer for photos on a fee-splitting basis. The usual trade magazine article may not use more than two or four photographs, and only a very hungry photographer would be willing to devote the energy, time, and expense to speculate on the possibility of such a fee. Nor should you hire a professional photographer to illustrate your article. The fee may well exceed your pay.

The solution is to learn to use a camera yourself and, ideally, to get some darkroom experience and be prepared to make your own 8" x 10" enlargements. Few photo shops are willing to crop photos and give your pictures the careful extra touch that can be done only in a darkroom. A sheet of 8" x 10" paper may cost about 15 cents and a finished print of the same size $5.00. In a few months of intensive writing your investment in darkroom equipment can pay for itself–providing you have spent an amount justified by your use. The same goes for cameras.

Choosing a camera. Editing a negative, that is, cropping out unsuitable portions or actually opaquing portions of the film, demands working with a decent size. A slide camera, using 35mm film, produces a small negative that may suffer when enlarged to an 8" x 10" size, though modern developers and film are of very high quality. There are innumerable 35mm cameras on the market, and they have the advantage of being small, are lightweight, and can be obtained with interchangeable lenses. A 35mm camera with a variety of lenses is an expensive investment, however, an investment that needs to be justified by heavy use. There is no denying the advantage of a wide angle lens for interior photographs, and a telephoto for certain outdoor, distant shots. Skill and practice are important. No matter how good the camera is, only the operator can make it take good pictures.

A twin lens reflex camera usually does not have a lens option because there are two lenses, one for viewing and one for taking the photo, and the duplication is costly. These cameras are heavier, not as popular in this world of color slides, but they take a 2¼" square negative, quite easy to work with. The viewers, once you get used to them, are more versatile than the single lens cameras, for you can hold a twin lens reflex over your head like a periscope when taking pictures in crowds, or to get a better high angle on a piece of machinery.

The old Speed Graphic press cameras using plates may look romantic, but lugging them around is OK only for enthusiasts and donkeys. The tiny pocket cameras like the 110 cassette sizes are not suitable for article work. The negatives are so tiny that when they are enlarged to 8 x 10 inches too much is lost in resolution and contrast. An article illustrated with poor pictures cannot compete with an equal text that is illustrated well. As for the spy cameras, leave them to the spies. Anyone using one may be treated like a spy!

It is possible to take credible pictures with a small Instamatic camera using 126 film, providing the lens is good. The way to judge a lens is to look at a picture taken with that camera. Are all the details sharp? Are the corners of the picture just as clear as the center? Or does the picture look like it was taken under water through a greasy piece of glass? Is the lens scratched? Etched by acid fingerprints? A used camera may satisfy your needs. Take good care of your camera; keep it clean, don't drop it, and keep it out of that overheated trunk or glove compartment. Lightmeter elements melt.

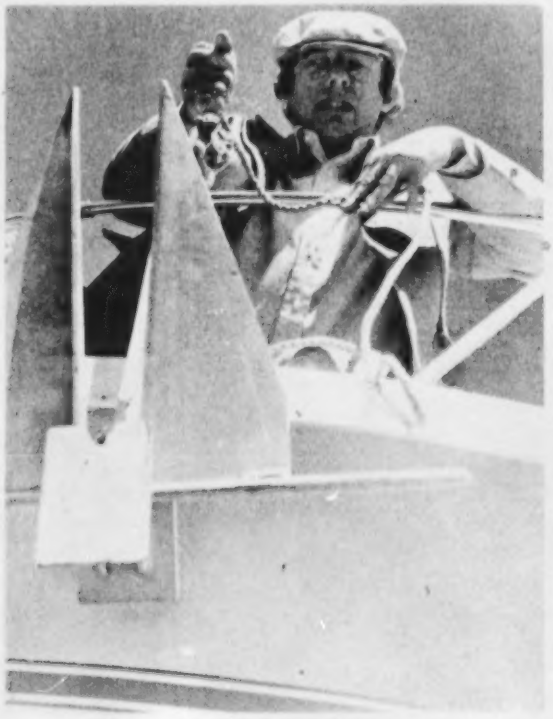
Editors usually require that pictures be 8" x 10" on glossy paper. The exotic paper surfaces used by some studios are not suitable for halftone magazine production. Sometimes an editor has to retouch pictures when an outline or detail is too weak, and a pebbled or sepia toned picture is unsuitable. Yet there are editors who will work with negatives alone, (usually not to be returned) and even, occasionally, with snapshots. Remember: a negative is most important. Polaroid cameras are no good for magazine work. With a negative, you can make another print of equal quality. If it is scratched, covered with fingerprints, or not returned, you're out of luck. Take good care of your negatives, keeping them separately in glassine envelopes, identified so you can find them again. I have had to dig out negatives fifteen years old and put them to uses I never dreamed of. It was worth the trouble of careful filing.

Photo content must be related to the article. Get close to the subject. Make the picture tell a story. Our eyes have a way of ignoring extraneous matter, and we can almost miraculously concentrate on one special feature, but a camera may not. Be aware of the background, so it doesn't interfere, and be sure there's enough light to show the details. There's no value in a portrait of someone that conceals the face in the shadows, unless you want anonymity. Use a flash? Yes, but bulbs are expensive. You'll eventually need a strobe, but if your camera is adjustable you can make good use of ultra high speed film.

A frequent photo in trade and scientific articles is a portrait. There are several pitfalls to avoid. First, don't get too far away. It's the face that counts. In the final print the editor may even crop off the top of the subject's head, or the ears. Second, don't include parts of the subject that distract. One portrait I took of a Norwegian businessman showed not only his socks, but a bit of his leg above them. There is nothing uglier in a man's appearance than the tops of his socks! Third, don't take the conventional. Sure, it is typical of almost all executives to find them behind their desks, but such subjects are not exciting. Take a few minutes to remove the subject from his office. *Time* magazine got Mr. Honda out in the plant parking lot in front of a sea of motorcycles. With a little imagination you can think of something equally appropriate.

You should also be careful of lighting. One bald executive, photographed backlighted against the sky, lost the top of his head in the resulting prints! And remember the background. You don't want the subject to look like a distant flagpole is sticking out of his ear.

Author/Photographer at Work



Resulting Illustration

CHAPTER 12

PREPARING AND SELLING THE MANUSCRIPT

© Harley L. Sachs, 1976
Humanities Department
Michigan Technological University
Houghton, MI 49931

Respectfully submitted
at usual rates. Return
envelope enclosed.
About _____ words.

This page is a sample of how your finished manuscript should look. You wouldn't expect to be received favorably if you went looking for a job in filthy, tattered clothes, were rude, and used poor grammar; yet your manuscript introduces you in the same way. If an editor receives a manuscript closely handwritten with a red felt-tip pen on yellow paper, on both sides, neatly rolled and tied with a red ribbon, you can be sure that the submission will be returned without being read. When you submit a manuscript for publication, expecting to be paid for it, it should be in proper form. What's that?

It must be typed, double spaced, on one side of 8 1/2" x 11" paper, with an inch margin on all edges, just like this one. Though the greasy, erasable, typing papers are easy on the typist, they are hard on the editor who probably uses a ball point pen. Ball point pens, once touted to write under water or under butter, will not write on erasable typing papers, and some editors refuse such manuscripts. Begin the first page about halfway down to leave room at the top for your return address and the editor's comments. Center the title, adding a subtitle if you wish, and carry on.

In selecting a typewriter, avoid the cursive type faces. They may look cute, but they are hard to read and there are few jobs for blind editors. Pica, the larger of the usual typewriter faces, is better than elite, the smaller. Elite gets about 10% more on a page and complicates the editor's copy fitting problems.

Use a decent paper. It is not necessary to invest in 100% rag bond, unless you expect your manuscript to last a hundred years, but at the other extreme, very cheap paper like that found in tablet form in dime stores, may not make a good impression. Mimeograph paper is cheap, but absorbs ink rapidly, and will soon suck your typewriter ribbon dry.

Your typewriter ribbon should be dark and clear, your typewriter keys clean (no solid black little o's), and can be any color, as Mr. Ford once said, as long as it's black. Black and red ribbons are OK for bookkeepers who run to deficit spending, but solid black ribbons last longer. (If your ribbon does dry out, you can bring it back to life for awhile by adding a small quantity of light machine oil to the spool and reversing it, spool to spool, once or twice.)

Number your pages at the upper right hand corner and add either your initials or a key word from the title, just in case your manuscript and a dozen others are blown off the editor's desk and must be sorted out. It is not necessary to add "more-" at the bottom right hand corner of each page before the last one unless you write for newspapers. The old journalist's –30– at the end of newspaper stories referred to a short line put under the story in the composing room. That's old fashioned now.

Unless a manuscript is only about three pages long, it should be mailed flat. You should always enclose a self-addressed return envelope with sufficient postage clipped to it with a paper clip. If your article is accepted, the stamps go into a stamp fund for hapless manuscripts that might otherwise be tossed in the waste basket.

Submit your manuscript to only one editor at a time. If you have been very thorough about writing it, it has been tailored to one publication. Editors sometimes live by a double standard. They want you to be true to them, but may not keep the faith and may sit on, file and forget, or even lose your submission while you wait for months on pins and needles. It is better to be kept in suspense than it is to send out a piece to several competing editors and have to recall the manuscripts still out when one of them accepts yours. They'll regard all future submissions with suspicion. Since it takes time to establish yourself with an editor, it doesn't pay to put yourself on his list of untouchables. You never know when you'll want to send him something else. And do NOT write, saying, "The editor of one of your competing magazines wants to pay me $*** for this, will you offer more?" Chances are the first editor already has the article in his schedule and he would be furious if you recalled it.

If an article has been published before, you must say so in your covering letter, but it is not necessary to say where unless you are asked. Such reprinting is possible if the article is a "think piece" that can be equally useful for many different trades. Articles on management, safety, taxes, and general business practice have possibilities for wide publication in trade journals.

Always make a carbon copy of your MS and file it in a safe place. Some editors will accept electrostatic (Xerox) copies as submissions; others demand the original typescript. But you must have a copy just in case your original is lost and you want to try elsewhere. At that point you may want to resort to a copy, but few editors will consider a carbon.

What happens if you send out an article and get no reply? Don't worry until about six weeks have elapsed. Then you can politely ask if it was received. You can facilitate acknowledgement by enclosing a self-addressed post card to be returned as soon as the manuscript arrives. Six weeks is long enough for an article to sit on someone's desk. But it does happen that editors are away on trans-atlantic sailboat races, as happened to me, and are slow in catching up when they return, sunburned and salty, to a desk piled deep in manuscripts and other urgent matters. If you write demanding an immediate report, you can expect the manuscript back by return mail. No one wants a hassle.

If you have illustrations, namely photographs, you need to protect them. Make a cardboard sandwich with the photos inside and held with rubber bands (loose enough to lie flat). Paper clips can crease a photo, making marks that will show up when half tones are made. Be sure the manila envelopes are large enough so there is about half an inch of space around the edges of the photo sandwich. Manila envelopes are often bundled by the post office and tied with string. Very large envelopes tend to be cut or fold up in such stacks. On the other hand, don't stiffen your envelope with plywood, for the first class postage will break you.

First class postage? Yes, indeed. There's little to be saved by the "special manuscript rate, third class"

unless you are a novelist and want insurance. Articles, however, need to move quickly, and first class gets better handling.

It doesn't take long before you realize that it is expensive to buy a new mailing and a new return envelope for each manuscript. (The return envelope is slightly smaller so it fits inside without having to be folded). Editors are not fussy if you reuse an envelope. In fact, there may be some reverse snob appeal in using old envelopes, just as long as they are intact, and not patched with tape and wallpaper. In time the post office will balk and return something stamped "Do not use this container again" and you'll have to buy some new envelopes. Keep track of the expenses.

There's disagreement about covering letters. If you have prepared the article after a query, something simple like "Here's the article in response to your June 23rd letter" is probably enough. If you have not queried first, however, you may need to introduce yourself. If you do introduce yourself, remember that you may do your article a disservice. The editor may not expect much if you say, "I showed this article to my Aunt Sarah and she thought it was swell," or "the Sunday school was thrilled by this," (unless the magazine is for religious schools) or, "I am a rank beginner but thought you might want to see my attempt at an article on geothermal energy systems." In all such cases it is better for the article to speak for itself. However, if you have published in the magazine before, a subtle reminder will help if the editor doesn't remember you at once. Every author wants to establish himself with a publication for that assurance of repeated sales and industry recognition. It's much better to have published twenty articles in one journal than to publish one in twenty journals. What a covering letter should say is that you are submitting on speculation, that is, without a guarantee of publication, and that you'd like the manuscript returned if it isn't suitable. Do not expect a detailed analysis of why your manuscript failed. Editors rarely take the time, and do not want to get into arguments with miffed authors who want to get into a long involved correspondence. ("What do you mean, I don't put enough convincing detail into my skunk-hunting article? I've hunted dozens of skunks!").

The most important thing about submitting a manuscript is getting it into the mail. It will not get into print lying on your desk. If it comes back, rewrite it to correct its weaknesses, and send it out again. You must be persistent, in spite of the shattering blow to the ego when you get a rejection. Good Luck!

CHAPTER 13

WRITING WHILE TRAVELING

A famous cartoonist described his sketching trips saying that he needed no luggage other than a toothbrush, his drawing instruments (a pocketful of pencils and pens), and some money. For a drawing board he used the bottom of a drawer in his hotel room, and when his clothes got dirty he bought a new shirt and underwear, mailing the dirty linen home. It's certainly true that a writer can make do with a pad of paper and a pencil and write first drafts on the bus, train, or plane, or in the back seat of the car. But the trade journalist also needs a camera—there's the rub!—and may want to lug a typewriter.

There's no getting around that camera, and that means there's a flash and film, too. A light-weight gadget bag makes more sense than a heavy leather one that cuts a groove with its shoulder strap around your neck. But the high cost of travel imposes other demands on the trade journalist—it is too expensive to come back and take the pictures over if for some reason they didn't come out. That means developing the film before you leave town, if possible. No illustrations, no story. So in addition to camera, film, flash, and possibly a light-weight tripod, there's some provision for developing pictures.

For several years I neatly packed a daylight developing tank, camera, thermometer, film clips, and a baby bottle (graduated in ounces and cc's for measuring developer solutions) all in the gadget bag. Later the daylight tank was replaced with a Nicor stainless steel tank and a cloth changing bag to load it in. Chemicals are actually no problem. Though darkrooms are replete with bottles of solutions, all you need are a few packets of one shot developer, such as Microdol or Rodinol, and a supply of hypo crystals. A tablespoon of hypo crystals makes enough fix for a roll of film, and it can be thrown away. The whole developing process can be done on a picnic table in bright sunlight or in a hotel room sink. Even if you have no running water to wash the film, five or six soakings for five minutes apiece in fresh water, a new 12-16 ounces each time, will do.

To help assure yourself of satisfactory illustrations, ALWAYS TAKE TWO PICTURES OF EVERYTHING, from somewhat different angles and with one or two different stops in the exposure, so you are more certain of getting one good negative. Things go wrong, like a camera shaken, an eye blinked, or a flaw in the developing process, and film suddenly becomes very cheap when it is the alternate to going back to the place and taking the pictures again. A scientific article does not have to be illustrated with the same photographic excellence as the *National Geographic*. What's important is that the content of the picture is clear and communicates. The prints come later, of course. One does not have to make prints on the run unless the trip is very extensive.

I did make two free lance trips of several months, traveling by car. Prints were necessary, and one cannot wait around a town for a photo shop to finish the job. So I rebuilt an orange crate to exactly fit my small enlarger on its easel, adding slots for ferrotype plates and envelopes with enlarging paper, space for the trays, and a couple of bottles for solutions. Brown beer bottles with corks from the drug store do very well and are cheap —they're what you have left when you've drunk the beer! A rope handle completed the unit, and safelights were wired and mounted right on the easel, shielded so light did not stray onto the paper. Though heavy, the system worked very well, and could be set up once a week in a darkened hotel room. But a traveling arrangement like that demands a car. You would not make it through a subway, onto a bus, and out to an airport lugging such a portable darkroom, along with the rest of your baggage!

So, for a shorter trip, you'll need an overnight bag, camera gear, and possibly a typewriter so you can write en route. Some trains have tables in the compartments, and you can even type with the machine on your lap.

Preparing interviews before travel requires even more care. If you are writing for an agency, such as *Nationwide Trade News*, or for an editor or editors with assignments, you know where you're going. You must know where you are going and have specific and definite places to visit if you are to have any prospect of placing your articles. The people you want to see must be expecting you. There's no sense in hustling off to Cairo without an appointment with the Man, for you may find that he just sailed for South America aboard his yacht. People do go

on vacation. They do have more important obligations than visits from magazine writers.

Write about three weeks in advance, asking for confirmation. Then, the day before the interview, telephone. Phone calls are much cheaper than time-consuming, expensive travel. Only when you are certain of a receptive interviewee can you have real confidence. On one occasion, having written in advance (on printed letterhead, referring to the magazine for which I had written for several years), and telephoned the day before, I arrived at a company only to be asked, "Who are you? Do you have any identification?" and then told that any information that would be of interest to the magazine's readers was too important to reveal to competitors. But that was one case in a hundred. Still, even when you have a good lead on an article, the company officials may not be interested.

If you are driving, the first thing to do on arriving in a strange city is to get a map. Relying instead on verbal instructions in German, I once drove for hours, helplessly, all around Stuttgart, Germany's seven hills, totally lost. If no map is available, get to a phone and ask for directions to the place of business, factory, or whatever your destination is. In one case I was actually told to stay put and wait for a car to come to guide me into Bremen! (A handy method, considering the difficulty of locating the company on its tiny one-way-traffic back street!). If you are taking the train or a bus and must leave town the next day, start planning your exodus at once, picking a hotel most convenient to those plans. Travel is not uniformly hectic, and it is best to schedule your timetable so there is no desperate rush from a distant rooming house, loaded down with baggage, via unfamiliar public transportation, just in time to miss a train.

It's wise to travel with some comfort. Going all day in a business suit and dress shoes leads to a rumpled afternoon. If you must travel all morning by train for an afternoon interview, you'll be greatly refreshed if your kit has a thin pair of very light slippers and a folding hanger for your coat. Your feet need the most rest of any part of you, and a last minute's change of shirt or tie converts a weary traveler into a somewhat refreshed businessman. Hang up the jacket so it won't look like you slept in it on the train! All this has been greatly helped by the synthetic, wrinkle-free and drip-dry fabrics.

At the end of the day, after a hard day's travel and interviewing, you can look forward to a quiet meal, and an evening of rinsing out your clothes in the hotel sink and then developing pictures after dark!

An extensive European trip can be financed by the trade journalist who plans his itinerary around the various trade fairs, contacts the editors of all the appropriate trade and scientific journals, lands assignments or at least a willingness to consider certain kinds of articles, and then sets off. Howard Fogel, once manager of *Nationwide Trade News*, made such a trip, only to be waylaid on his way to the Paris airport. He was mugged, robbed, lost his camera, film, and baggage, and spent weeks in the hospital. Had he developed the film and written the articles as he traveled his loss might not have been as great. Remember, the sooner the pictures and copy are in the mail, the sooner you can expect publication and a check. Camping for three months in a Volkswagen bus through Europe's coldest winter in a hundred years, I wrote three to four articles a week, "camping" in such odd places as public marketplaces, zoo parking lots (a favorite, for there's always a public toilet and a water fountain nearby), and side streets. Campgrounds are closed in the winter, remember, and a van with curtains drawn does not indicate that there's a family of writers inside! I have made similar writing trips from Washington, D.C. to the State of Washington, writing all the way.

You can combine writing with a holiday trip, too. Keeping your eyes open for articles, though, changes the tone of travel. You may not be able to combine relaxation with the intense concentration of looking for articles, and when your companions want to go to the beach, you may be left behind to develop film. Miami's bikini-clad beaches are not the same when your eyes are riveted (?!) to your typewriter on your knees. One thing about working holidays, though, is that the portion that is work is deductible.

CHAPTER 14

THE BUSINESS OF WRITING

Writing trade and scientific articles is a business and should be pursued in a businesslike manner. It is not likely to become a full time occupation. There are a few frenetic free lancers who relentlessly run around the country. I heard of one who traveled a route that spanned the midwest, visiting every shopping center, shooting pictures of every novel window display, catching every new sales promotion, mailing film to be processed and dictating articles into cassettes while he drove from location to location, earning enough to pay a typist at each end of the cross-country route. He was an exception. There are others who live on yachts eating the fish they catch and writing an occasional article to pay for an engine overhaul. These two extremes have something in common: they earn money by their writing and they pay taxes on their income.

Your work space. Whether your writer's sanctum is a closet, the woodshed, a garret, or the spare room, it should permit you to write regularly and without being disturbed. One Minneapolis science writer prefers his study with a small light over the desk and the rest of the room in darkness– a microcosm where he is God. Simenon, the writer of hundreds of Maigret mysteries, didn't have a permanent place. He periodically fled to strange, small towns, rented a room, and set up his work space with extreme care. His typewriter, pipes, paper, etc. were all arranged according to his habit so he could go into a creative trance. Ten days later a novel would emerge! Your space, too, must be clearly defined and free from distractions.

This clear definition of work space will do more than reduce distraction. It will make it easier to define your business expenses. The moment you receive your first check for an article you acquire a business partner: the Internal Revenue Service. Don't let the prospect of having to pay taxes on your article income put you off. On the contrary, your being a professional, tax-paying author is an advantage:

- The spare room, now your office, is a deductible expense.
- The heat and lighting for the office are deductible.
- The fire insurance, pro-rated for the space, is deductible.
- The property tax and depreciation on your office are deductible.

The depreciation on your desk, typewriter, filing cabinet, and camera gear is deductible. So are the costs for paper, stamps, envelopes, typewriter ribbons, etc. Look at these deductions as annual discounts on the cost of acquiring the necessities for your business.

Keep good records. When I was free lancing full time I had as many as twenty-eight manuscripts out at once, with many more being written every week. Every manuscript has a carbon copy in my chronological file. This monograph is number 359. When a manuscript is mailed, the ledger indicates its title, where it was sent, who it went to, the date of mailing, the date of acceptance, the date of payment, and the amount.

Also listed are the costs for postage, insurance (both manuscript and home owners), auto travel (by the mile), parking, meals, film, darkroom supplies, paper, etc. It is best to categorize these according to the lists in your income tax forms so the column totals are easy to enter at the end of the year in the "Profit or Loss From Income or Profession" form.

In addition to this, I keep carbons of all correspondence, and when a manuscript is rejected and submitted elsewhere that correspondence is clipped together, becoming the life story of the article's progress. Tear sheets go in another file and are listed on my vita sheet bibliography.

Remember your library. Your handbooks, directories, and reference books are deductible. You can either keep track of each purchase and deduct the total bought each year or depreciate the library over a period of several years. This becomes continuous as you acquire more books. Your subscriptions, too, are important, for you cannot expect to write for magazines you don't read.

If you are writing on a subject that is also your hobby your writing may finance it. Owning a boat is a luxury, but writing boating project articles and cruise stories makes at least part of the costs deductible, and the profits help finance more projects! Only a fair proportion of the costs is deducted.

The IRS does not look favorably on businesses entered into for the sake of losing money. You will not be able to deduct anything unless you can demonstrate

that your business has produced income. This creates a desperate dilemma for the unpublished poet, but for the technical writer it's not so serious. You can expect income from your investments, even though you may experience initial net losses after all the deductions for depreciation, taxes, rent, etc. You won't drive two hundred miles at 15 cents a mile to do a $30 article!

If you are really successful and develop from being a writer of scientific articles to being the author of popular scientific books you may even want to incorporate, thereby limiting liability while spreading income among the shareholders in the family, assigning the copyrights to the company. See your lawyer first! And talk to your IRS agent.

Keeping in mind that writing as a business helps establish and maintain that professional attitude toward your writing. Role playing is a large part of our lives. The businesslike attitude toward your records will reflect in your letters, interviews, and the way you write.